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Deep-sea biodiversity dynamics and faunal evolution throughout the Cenozoic

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Macroevolutionary history of deep-sea benthic ecosystem remains poorly understood because of limited and fragmentary distribution of deep-sea strata as outcrops on land and resulting limited availability of macrofossil data. Deep-sea sediment cores provide almost continuous sedimentary records from the Jurassic to the present of the last ~200 million years, of which Cenozoic record is especially complete, although macrofossils are rarely included there because only small amount of sediments are available from the sediment cores. Some small organisms with high fossilization potential known as microfossils are abundantly included in these deep-sea sediment cores, and thus provide us unique opportunity to investigate detailed macroevolutionary history throughout the Cenozoic with sufficient sample sizes for quantitative analyses. However this direction of research is still underdeveloped after the pioneering works in 1980s–1990s. In this talk, I will focus on two microfossil groups of crustacean Ostracoda and protozoan Foraminifera and review our current understanding of Cenozoic deep-sea benthic macroevolutionary history.